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| 09/856,926 | 05/29/2001 | Kazuhiho Tsuda | 55884/70904 | 6384 |

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| EXAMINER | |
|---|---|
| LEWIS, DAVID LEE | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2629 | |

DATE MAILED: 07/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/856,926 | TSUDA ET AL. | |
| | Examiner | Art Unit | |
| | David L. Lewis | 2629 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *29 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *27-66* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *29,42,43 and 46* is/are allowed.

6)☒ Claim(s) *27,28,30-41,44,45 and 47-66* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claim 27, 28, 30-41, 44, 45, and 47-66 is rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki (6522319).**

**As in claim 27, Yamazaki teaches of** a method of driving a display device which displays by selecting and scanning each scanning signal line of a screen having pixels arranged in a matrix form, **figure 1, column 15 lines 50-65,**

and supplying through a data signal line a data signal to a corresponding pixel of the scanning signal line as selected, **figure 3 items X and Y, column 18 lines 47-67, column 19 lines 7-14,**

wherein a quiescent period, **figure 3 item VC or (50H-10H), column 19 liens 1-3,**

in which all the scanning signal lines are set in non-scanning state, is set to be longer than a scanning period required for scanning each scanning signal line of the screen at least one time, **figure 3 item VC (40H) > 10H, column 18 lines 45-55,**

wherein a sum of the scanning period and the quiescent period is set to be equivalent to one vertical period, **figure 3 item 50H(f1), column 19 lines 1-5, column 20 lines 65-67.**

**Wherein Yamazaki teaches of a driving technique for a partial display that is also applicable for driving the full display, as known in the art, column 21 lines 30-35, column 26 lines 60-67.**

**As in claim 28, Yamazaki teaches of**, wherein: a non-scanning period including the quiescent period is selected among a plurality of non-scanning periods, figure **column 18 lines 60-67**.

**As in claim 30, Yamazaki teaches of**, said display device includes image data storage means for storing image data based on which the data signal is produced, figure 5 item 14, column 21 lines 45-67, and an operation of

transferring the image data from said image data storage means is stopped in the quiescent period, figure 6, column 21 lines 45-67.

**As in claim 31, Yamazaki teaches of**, wherein: said display device includes image data supply means for supplying image data based on which the data signal is produced, figure 5 item 15, and an operation of receiving a supply of the image data from said image data supply means is stopped in the quiescent period, figure 6, column 21 lines 45-67.

**As in claim 32, Yamazaki teaches of**, wherein: an operation of an analog circuit irrelevant to display is stopped in said quiescent period, figure 13, column 31 lines 47-53.

**As in claim 33, Yamazaki teaches of**, wherein: an operation of at least an analog circuit of said data signal line driver is stopped in the quiescent period, figure 11 item 26-29, column 29 lines 9-21.

**As in claim 34, Yamazaki teaches of**, wherein: said data signal lines are all set in high-impedance state with respect to at least said data signal driver for driving all of said data signal lines in the quiescent period, column 39 lines 29-42.

**As in claim 35, Yamazaki teaches of**, wherein: in said quiescent period, after setting said data signal lines all in high-impedance state, an operation of an analog circuit irrelevant to display is stopped, column 39 lines 29-42 and figure 13, column 31 lines 47-53.

**As in claim 36, Yamazaki teaches of**, wherein: in said quiescent period, an operation of at least an analog circuit of said data signal driver is stopped, figure 11 item 26-29, column 29 lines 9-21.

**As in claim 37, Yamazaki teaches of**, wherein: said data signal lines are all set in high impedance state after setting them to have potential at which variation in data holding state of all the pixels are minimized on average, column 18 lines 65-67, column 39 lines 27-42.

**As in claim 38, Yamazaki teaches of** a display device, comprising: control means for executing said method of driving a display device of claim 27, figure 1 item 5.

**As in claim 39, Yamazaki teaches of** an electronic device adopting the display device of claim 38, figure 24, column 40 lines 30-45.

**As in claim 40, Yamazaki teaches of**, wherein: said display device is a liquid crystal display device which includes a liquid crystal display element having pixels arranged in a matrix, figure 1 item 1:LCD, form in which a charge based on a data signal supplied through the data signal line is written periodically in an electric capacitance formed by interposing liquid crystal between a pixel electrode and a counter electrode via the active element as selected by a scanning signal to be supplied from the scanning signal line, figure 22, column 32 lines 40-67.

**As in claim 41, Yamazaki teaches of**, wherein: a non-selective voltage which substantially maximizes an OFF resistance value of the active element is applied to all of said scanning signal lines in the quiescent period, figure 3 item VC.

**As in claim 44, Yamazaki teaches of** a display device comprising: control means for executing the driving method of a display device of claim 40, figure 1 item 5.

**As in claim 45, Yamazaki teaches of**, wherein: said liquid crystal display element includes an auxiliary capacitance electrode which forms an auxiliary capacitance of the pixel with said pixel electrode, is formed so as not to be overlapped with said scanning signal lines, figure 22, column 32 lines 40-67, wherein said variation is known.

**As in claim 47, Yamazaki teaches of**, wherein: said liquid crystal display element includes a reflective member which realizes a reflective-type display using surrounding light, column 41 lines 5-20.

**As in claim 48, Yamazaki teaches of**, wherein: said reflective member constitutes at least a part of said pixel electrode, column 41 lines 5-20.

**As in claim 49, Yamazaki teaches of**, wherein: said reflective member either has a hole for transmitting there through light or is semi transmissive, column 41 lines 5-20.

**As in claim 50, Yamazaki teaches of** an electronic device adopting said display device of claim 44, figure 24, column 40 lines 30-45.

**As in claim 51, Yamazaki teaches of** a method of driving a display device which displays by selecting and scanning each scanning signal line of a screen having pixels arranged in a matrix form, **figure 1 item 1, column 15 lines 50-65 and figure 22, column 32 lines 40-65**,

and supplying through a data signal line a data signal to a corresponding pixel of the scanning signal line as selected, **figure 11, column 27 lines 60-67**,

the method comprising the steps of: forming a quiescent period subsequent to a scanning period required for scanning each scanning signal line of a screen at least one time, wherein the quiescent period has all the scanning signal lines set in non-scanning state and the quiescent period is longer than the scanning period, and in said quiescent period, a potential of said data signal line is set to a predetermined data signal line quiescent potential, **figure 3 item VC**, wherein said quiescent period VC is 40H and said scanning period is 10H, **column 18 lines 40-57, column 20 lines 65-67.**

**Wherein Yamazaki teaches of a driving technique for a partial display that is also applicable for driving the full display, as known in the art, column 21 lines 30-35, column 26 lines 60-67.**

**As in claim 52, Yamazaki teaches of**, wherein: the data signal line quiescent potential of said data signal line in the quiescent period is set within a range of a voltage of the data signal to be supplied to the data signal line in said scanning period, figure 3 item Xn, column 17 lines 16-25.

**As in claim 53, Yamazaki teaches of**, wherein: the data signal line quiescent potential of said data signal line in a quiescent period is set to a center of an

amplitude of a data signal to be supplied to said data signal line in said scanning period, figure 3 item Xn, column 17 lines 16-25.

**As in claim 54, Yamazaki teaches of** a method of driving a display device which displays by selecting and scanning each scanning signal line of a screen having pixels arranged in a matrix form, **figure 1 item 1, column 15 lines 50-65 and figure 22, column 32 lines 40-65,**

and supplying through a data signal line a data signal to a corresponding pixel of the scanning signal line as selected, **figure 11, column 27 lines 60-67,**

wherein: a quiescent period, **figure 3 item VC,**

in which all the scanning signal lines are set in non-scanning state, is set to be longer than a scanning period required for scanning each scanning signal line of a screen at least one time, **figure 3 item VC,**

wherein said quiescent period VC is 40H and said scanning period is 10H, **column 18 lines 40-57,**

and in the quiescent period, a potential of a counter electrode is set to a predetermined counter electrode quiescent potential, **figure 5 item CNT, column 22 lines 10-30**.

**Wherein Yamazaki teaches of a driving technique for a partial display that is also applicable for driving the full display, as known in the art, column 21 lines 30-35, column 26 lines 60-67.**

**As in claim 55, Yamazaki teaches of**, wherein: the counter electrode quiescent potential of said counter electrode in the quiescent period is set within a range of a voltage of a counter electrode driving signal to be supplied to said counter electrode in the scanning period, figure 5 item CNT (hi/low), column 22 lines 10-30.

**As in claim 56, Yamazaki teaches of**, wherein: the counter electrode quiescent potential of said counter electrode in the quiescent period is set to a center of an amplitude of the counter electrode driving signal to be supplied to said counter electrode in the scanning period, column 22 lines 10-43.

**As in claim 57, Yamazaki teaches of** the method of driving a display device, wherein: a potential of said data signal line in said quiescent period is fixed to the data signal line quiescent potential, column 18 lines 65-67, and a potential of the

counter electrode in said quiescent period is set to a counter electrode quiescent potential, column 22 lines 10-37.

**As in claim 58, Yamazaki teaches of** wherein: in said quiescent period, the potential of the data signal line and the potential of the counter electrode are set to the data signal line quiescent potential, and the counter electrode quiescent potential respectively, column 18 lines 65-67, column 22 lines 10-37, and subsequently, said data signal line is set in high-impedance state with respect to said data signal driver for supplying data signals to said data signal lines, column 39 lines 27-40.

**As in claim 59, Yamazaki teaches of** a method of driving a display device which displays by selecting and scanning each scanning signal line of a screen having pixels arranged in a matrix form, **figure 1 item 1, column 15 lines 50-65 and figure 22, column 32 lines 40-65,**

and supplying through a data signal line a data signal to a corresponding pixel of the scanning signal line as selected, **figure 11, column 27 lines 60-67,**

wherein: subsequent to a scanning period required for scanning each scanning signal line of a screen at least one time, a quiescent period, in which all the

scanning signal lines are set in non-scanning state, is formed so as to be longer than the scanning period, **figure 3 item VC**,

wherein said quiescent period VC is 40H and said scanning period is 10H, **column 18 lines 40-57,**

and an AC driving signal, having a frequency of not more than that of the data signal to be supplied to the data signal line in the scanning period, is applied to the data signal line in the quiescent period, **figure 3 item M, column 19 lines 4-13**.

**As in claim 60, Yamazaki teaches of** wherein: an amplitude of a driving signal to be applied to the data signal line in said quiescent period is set within a range of a voltage of a data signal to be supplied to the data signal line in the scanning period, figure 3, column 17 lines 16-67.

**As in claim 61, Yamazaki teaches of** a method of driving a display device which displays by selecting and scanning each scanning signal line of a screen having pixels arranged in a matrix form, **figure 1 item 1, column 15 lines 50-65 and figure 22, column 32 lines 40-65,**

and supplying through a data signal line a data signal to a corresponding pixel of the scanning signal line as selected, **figure 11, column 27 lines 60-67,**

wherein: subsequent to a scanning period required for scanning each scanning signal line of a screen at least one time, a quiescent period, in which all the scanning signal lines are set in non-scanning state, is formed so as to be longer than the scanning period, **figure 3 item VC,**

wherein said quiescent period VC is 40H and said scanning period is 10H, **column 18 lines 40-57,**

and an AC driving signal, **column 27 lines 50-60, figure 3 item M,**

which is within a range of a voltage of a counter electrode driving signal to be supplied to said counter electrode in the scanning period and which has a frequency of not more than that of the counter electrode driving signal, is applied to the counter electrode in the quiescent period, **figure 3 item M, column 20 lines 20-35, column 27 lines 50-60.**

**As in claim 62, Yamazaki teaches of** the method of driving the display device, wherein: an AC driving signal is applied to the data signal line in the quiescent period, figure 6 item CA, an AC driving signal is applied to the counter electrode

in the quiescent period, figure 6 item CNT, and both of said driving signals have identical frequencies and phases, column 22 lines 1-33.

**As in claim 63, Yamazaki teaches of** a method of driving a display device which displays by selecting and scanning each scanning signal line of a screen having pixels arranged in a matrix form, **figure 1 item 1, column 15 lines 50-65 and figure 22, column 32 lines 40-65,**

and supplying through a data signal line a data signal to a corresponding pixel of the scanning signal line as selected, **figure 11, column 27 lines 60-67,**

wherein: a quiescent period, in which all the scanning signal lines are set in non-scanning state, is set to be longer than a scanning period required for scanning each scanning signal line of a screen at least one time, **figure 3 item VC,**

wherein said quiescent period VC is 40H and said scanning period is 10H, **column 18 lines 40-57,**

and an AC driving signal, which is within a range of a voltage of a counter electrode driving signal to be supplied to said counter electrode in the scanning period and which has a frequency of not more than that of the counter electrode

driving signal, is applied to the said counter electrode and said data signal line in the quiescent period, **figure 6 item PD, column 22 lines 1-30.**

**As in claim 64, Yamazaki teaches of** a method of driving a display device which displays by selecting and scanning each scanning signal line of a screen having pixels arranged in a matrix form, **figure 1 item 1, column 15 lines 50-65 and figure 22, column 32 lines 40-65,**

and supplying through a data signal line a data signal to a corresponding pixel of the scanning signal line as selected, **figure 11, column 27 lines 60-67,**

wherein: subsequent to a scanning period required for scanning each scanning signal line of a screen at least one time, a quiescent period, in which all the scanning signal lines are set in non-scanning state, is formed so as to be longer than the scanning period, **figure 3 item VC,**

wherein said quiescent period VC is 40H and said scanning period is 10H, **column 18 lines 40-57,**

and a DC driving signal, **column 27 lines 50-59,**

having a potential within a range of a voltage of a counter electrode driving signal to be applied to said counter electrode in the scanning period, is applied to said counter electrode and the data signal line in the quiescent period, **figure 5 item CNT, column 22 lines 10-30**.

**As in claim 65, Yamazaki teaches of** a display device comprising control means which executes the driving method of the display device, figure 1 item 5, column 16 lines 15-25.

**As in claim 66, Yamazaki teaches of** an electronic device mounting the display device, figure 24, column 40 lines 30-45.

***Response to Arguments***

2. Applicant's arguments filed 3/29/2006 have been fully considered but they are not persuasive. Applicant argues it is clear from Figure 3 that lines Y41 to Y200 of Yamazaki are not scanned in the 10H period and therefore the 10H period of Yamazaki does not meet the claimed scanning limitations of claim 27. The Examiner disagrees. The claims recite scanning periods and figure 3 shows a 10H scanning period from Y1 to Y200, independent of whether or not each scan line is being driven during that 10H period. Figure 3 also shows a period VC before and after the 10H scanning period. This period VC is 40H and equivalent

to the claimed quiescent period being longer than the 10H scanning period. Therefore the claimed limitations are meet by Yamazaki. Figure 10 of Yamazaki analogously illustrates a scanning period of 40H and a quiescent period VC of 160H, once again reading on the claimed limitation. The Applicant argues that Yamazaki teaches away from having a quiescent period in a full display mode. Irrespective of this statement, Yamazaki teaches of a partial display mode and a full display mode. When the display is switched from a full display mode to that of partial display mode, a quiescent period is formed that is greater than the scanning period. In the partial display mode a period of 10H is required to display the relevant portions of the entire screen. Even though lines Y41 to Y200 are not displayed, the quiescent period of 40H remains for the entire screen, because the entire screen has partial display requirements. Rejection maintained. Claims 29, 42, 43, and 46, previously allowed, remain allowable.

***Conclusion***

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and

the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.
5. Please note that all future correspondences directed to David L. Lewis must be sent to Art Unit 2629.
6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: David L. Lewis
May 30, 2006

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